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A minimization algorithm with approximation of an epigraph of the objective function and a constraint set

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Abstract

Copyright © by the paper's authors.An algorithm is suggested for solving a convex programming problem which belongs to a class of cutting methods. In the algorithm an epigraph of the objective function and a feasible solutions set of the problem are embedded into some auxiliary sets to construct iteration points. Since these embedded sets are constructed as polyhedral sets in the algorithm, then each iteration point is found by solving a linear programming problem independently of the type of functions which define the initial problem. The suggested algorithm is characterized by the following fact. Sets which approximate the epigraph of the objective function can be updated periodically on the base of discarding cutting planes.

Keywords

A constraint set, An epigraph, Approximation sets, Cutting-plane methods, Minimization methods